

## **REMARKS**

**[0007]** Applicant respectfully requests entry of the following remarks and reconsideration of the subject application. Applicant respectfully requests entry of the amendments herein. The remarks and amendments should be entered as they are accompanied by a Request for Continued Examination.

**[0008]** Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1, 3-6, 8, 9, 18, 20-24, 32-34 and 42-43 are presently pending. Claims 1, 8, 9, 18, 21, 23 and 32 are herein amended. Claims 2, 7, 10-17, 19, 25-31 and 35-41 are cancelled without prejudice or disclaimer. Claims 42 and 43 are added.

### **Formal Request for an Interview**

**[0009]** If the Examiner's reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can discuss this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

**[0010]** Please contact me to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for me, I welcome your call as well. My contact information may be found on the last page of this response.

### **Claim Amendments and addition**

**[0011]** Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims 1, 8, 9, 18, 21, 23 and 32 herein. Applicant these amends claims to clarify claimed features. These claim amendments are fully supported by the Application and are made to expedite prosecution and more quickly identify allowable subject matter. The claim amendments are merely intended to highlight the claimed features, and should not be construed as further limiting the claimed invention in response to the cited references.

**[0012]** Furthermore, Applicant added dependent claims 42 and 43. Support for claims 42 and 43 can be found throughout the Application including, for example, the originally filed claims 3-5.

**[0013]** Accordingly, no new matter will be added by this paper. Entry to the file is respectfully requested.

### **Formal Matters**

#### **Claims**

**[0014]** The Examiner objects to claim 18 for not properly indicating the added feature “a processor; a memory coupled to the processor” through use of the proper convention (i.e., underline). Herein, Applicant amends claim 18, as shown above, to address the objection made by the Examiner, and to expedite prosecution.

## **Substantive Matters**

### **Claim Rejections under § 112 2<sup>nd</sup> ¶**

**[0015]** Claims 1, 2, 18, 19 & 32 are rejected under 35 U.S.C. § 112, 2<sup>nd</sup> ¶, because the claim language “a first set of transport network distances is physically or temporally near to a second set of transport network distances” was considered indefinite.

**[0016]** Applicant respectfully traverses this rejection. Furthermore, in light of the amendments presented herein, Applicant submits that this rejection is moot. In particular, Applicant herein amends claim 1, for example, to read as follows:

for each transport network distance in the first set of transport network distances, an absolute value of a difference between the transport network distance in the first set of transport network distances and a corresponding transport network distance in the second set of transport network distances is less than a threshold transport network distance value.

**[0017]** Applicant further submits that the term “transport network distance” is recited to comprise “a round-trip time” (claim 3), “transport network latency” (claim 4), or “a count of transport network routing hops” (claim 5).

**[0018]** Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection.

### **Claim Rejections under § 102 based on Banerjee**

**[0019]** Claims 25-30, 38 and 39 are rejected under 35 U.S.C. § 102(a) for being anticipated by non-patent literature “Scalable Peer Finding on the Internet” authored by Banerjee et al. (“Banerjee”). Without conceding the propriety of the rejections, and

solely in order to expedite prosecution, Applicant herein cancels claims 25-30, 38 and 39, rendering this rejection moot.

**Claim Rejections under § 103 based on Ratnasamy, Zhang and Banerjee,**

**[0020]** Independent claims 1, 2, 18, 19, 21 and 32 are rejected under 35 U.S.C. § 102(a) for being unpatentable over non-patent literature “Topologically-aware Overlay Construction and Server Selection” by Ratnasamy et al. (“Ratnasamy”) in view of U.S. Patent Application Publication No. 2004/0047350 to Zhang et al. (“Zhang”) and further in view of Banerjee. Applicant respectfully traverses this rejection.

**[0021]** Independent claim 32 is amended to incorporate features from claim 19, which is herein cancelled without prejudice or disclaimer. Claim 32 recites (in part):

*determining a peer to join a locality-aware overlay network peer group comprising one or more peers having locality-awareness of the overlay network peer group if, for each transport network distance in a first set of transport network distances, an absolute value of a difference between the transport network distance in the first set of transport network distances and a corresponding transport network distance in a second set of transport network distances is less than a threshold transport network distance value, wherein:*

*the first set of transport network distances comprises transport network distances from the overlay network peer group to one or more overlay network peer group neighbors ...;*

*the second set of transport network distances comprises transport network distances measured from the peer to the one or more overlay network peer group neighbors...*

**[0022]** Applicant respectfully traverses the rejection to claim 19, and further submits that at least the above emphasized features are not disclosed, taught or suggested in Ratnasamy, Zhang, and Banerjee, whether taken alone or in combination.

**[0023]** In rejecting the above feature, the Office cited Ratnasamy at page, 1195, Section, page 1196, Section IV, Zhang at paragraph [0034] and Banerjee.

**[0024]** Ratnasamy discloses a binning scheme whereby nodes partition themselves into bins such that nodes that fall within a given bin are relatively close to one another in terms of network latency. Ratnasamy discloses at page 1195 Topologically-aware construction of unstructured overlays, and at page 1196 using Hotz's metric in selecting a server, whereby measurements from a node to a set of well known landmarks are used to estimate inter-node distances. "Using Hotz's scheme, the distance between A and B is then the average of the lower and upper bounds as computed. Applying Hotz's metric to server selection, a client selects the server to which its estimated distance is minimum." (Ratnasamy at page 1196, Section IV, middle of right column).

**[0025]** It appears that Ratnasamy merely discloses a method for a node to select the nearest sever using Hotz's metric. Ratnasamy, however, does not specifically disclose the feature "determining a peer to join a locality-aware overlay network peer group if, for each transport network distance in a first set of transport network distances, an absolute value of a difference between the transport network distance in the first set of transport network distances and a corresponding transport network distance in a second set of transport network distances is less than a threshold transport network distance value" as recited in claim 32.

**[0026]** Zhang does not remedy the deficiency. Zhang discloses a method for creating expressway for overlay routing. Zhang in paragraph [0034] discloses that a source peer may route data by expressways to an intermediate peer. Zhang further discloses that “if peer 1 is requested to forward data to peer 7, peer 1 may determine that the largest zone that does not encompass peer 7. Accordingly, peer 1 forms a communication channel to the zone representative of the largest neighboring zone. Subsequently, peer 2 may search for the largest zone that does not encompass the destination to forward that data. Thus, each intermediate peer searches its routing table to find an expressway route to the destination peer.” Applicant submits that Zhang does not disclose, teach or suggest the recited feature “determining a peer to join a locality-aware overlay network peer group if, for each transport network distance in a first set of transport network distances, an absolute value of a difference between the transport network distance in the first set of transport network distances and a corresponding transport network distance in a second set of transport network distances is less than a threshold transport network distance value.”

**[0027]** Banerjee does not remedy the deficiency either. Banerjee discloses a scalable peer finding method on the Internet. Banerjee merely discloses “all application peers can join an anycast group, and the closest peer is then found by simply sending a message to the group.” (Banerjee at page 2205, Section I (A)). Banerjee further discloses a tier approach, whereby nearby peers are grouped into the same cluster. However, Banerjee is completely silent with respect to how exactly a peer determines to join a particular group.

**[0028]** Accordingly, since none of the cited references discloses, teaches or suggests the emphasized feature above, independent claim 32 is respectfully asserted

patentable over the cited references. Applicant respectfully requests the Examiner withdraw the rejection of claim 32.

**[0029]** Independent claims 1 and 18 are amended to incorporate similar features. For example, each of claim 1 and claim 18 recites, *inter alia*, “determine that an overlay network peer joins an overlay network peer group, if, for each transport network distance in a first set of transport network distances, an absolute value of a difference between the transport network distance in the first set of transport network distances and a corresponding transport network distance in a second set of transport network distances is less than a threshold transport network distance value...” Thus, independent claims 1 and 18 are also asserted patentable over the cited references for at least the similar reasons provided above with respect to claim 32.

**[0030]** In addition to the reasons above, independent claim 1, as amended, is respectfully asserted patentable over the cited references for at least the following reasons. Independent 1 is amended to incorporate features recited in claim 7, which is cancelled herein without prejudice or disclaimer.

**[0031]** Independent claim 1, as amended, recites (in part):  
***querying, from the peer, an overlay network peer group for a first set of transport network distances between the overlay network peer group and one or more overlay network peer group neighbors of the overlay network peer group, wherein:...***

each of the one or more overlay network peer group neighbors of the overlay network peer group has a direct overlay network connection to the overlay network peer group;

measuring, at the peer, a second set of transport network distances from the peer to each of the one or more overlay network peer group neighbors of the overlay network peer group; and

**[0032]** In rejecting the above emphasized feature, the Office cited Banerjee and indicated that Banerjee discloses querying the overlay network peer group for the first set of transport network distance (Banerjee at page 2206, Section B, finding the closest peer). Applicant respectfully traverses this rejection.

**[0033]** Banerjee at page 2006, the first paragraph in Section B discloses:

The closest peer finding operation proceeds top down on the peer hierarchy. We assume the existence of a special host that the query-hosts know of a priori through out-of-band mechanisms. We call this peer the Boot Strap Host (BSH). Each query-host initiates the query process by contacting the BSH. For ease of exposition, we assume that the BSH is the leader of the single cluster in the highest layer of the hierarchy, bypassed on the data path. (Alternatively it is possible that the BSH is only aware of the leader of the highest layer cluster, and therefore, not itself be part of the hierarchy. We do not belabor this complexity further.)

**[0034]** Banerjee at page 2006, the second paragraph in Section B further discloses:

Assume that host  $A_1$  wants to find its closest peer in this group. First, it contacts the BSH with its query (Panel 0). The BSH responds with the hosts that are present in the highest layer of the hierarchy. The query-host then contacts all peers in the highest layer (Panel 1) to identify the peer closest to itself. In the example, the highest layer  $L_2$  has just one peer,  $C_0$ , which by default is the closest peer to  $A_1$  amongst layer  $L_2$  peers. Host  $C_0$  informs  $A_1$  of the three other peers ( $B_0$ ,  $B_1$ , and  $B_2$ ) in its  $L_1$  cluster.  $A_1$  then contacts each of these peers with the query to identify the closest peer among them (Panel 2), and iteratively uses this procedure to find the closest  $L_0$  cluster (whose leader happens to be  $B_2$ )...

**[0035]** It appears that the BSH merely responds to the query-host with a list of hosts. In light of the above quotations, Applicant submits that the emphasized features



“querying, from the peer, an overlay network peer group for a first set of transport network distances between the overlay network peer group and one or more overlay network peer group neighbors of the overlay network peer group” is not disclosed or suggested in Banerjee.

**[0036]** Thus, independent claim 1, as amended, is respectfully asserted patentable over the cited references. In addition, claim 1 is also asserted patentable over the cited references for at least similar reasons as those discussed above with reference to claim 32. Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of claim 1.

#### Dependent Claims

**[0037]** These claims ultimately depend upon one of the independent claims 1, 18 and 32. As discussed above, each of the independent claims 1, 18 and 32 is patentable over the cited references. It is axiomatic that any dependent claim which depends from a base claim that is patentable over cited references is also patentable over the cited reference for at least the same reasons. Additionally, some or all of these claims may also be allowable for additional independent reasons. Accordingly, Applicant respectfully requests the Examiner withdraw the rejections of the dependent claims.

## **Conclusion**

**[0038]** All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action.** Please call or email me at your convenience.

Respectfully Submitted,

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